WATER MANAGEMENT'S CONTRIBUTIONS TO THE HYDROPOWER PROGRAM

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Two Major Parts of the Equation

- Equipment Conditions
- Equipment Usage:
  - ✓ Fuel
  - ✓ Turbines

Water Management Mission

Meet Multi-purpose Objectives

Compatible and Non-compatible

Current Trend (Environmental, ESA, CWA)

There are Substantial Potential Impacts to Power Generation (Billions of Lost Power Revenues)

During the 9 years between 1995 and 2003 alone, total

What Can be Done ?

Do Nothing (makes no sense)

Be Sensitive to:

Power Business

(Make water available at the right place & the right time)

PMA (ratepayers)

National (taxpayers)

The Corps is ultimately responsible

NWD-C Experience

Joint Operating Committee
Joint Water Management Partnertship

- Philosophy Alignment
- Roles & Responsibilities
- Norms
- Breaking cultural barrier
- Sharing of Information
- Joint Monthly Operational Planning
- Management & staff support

Vision

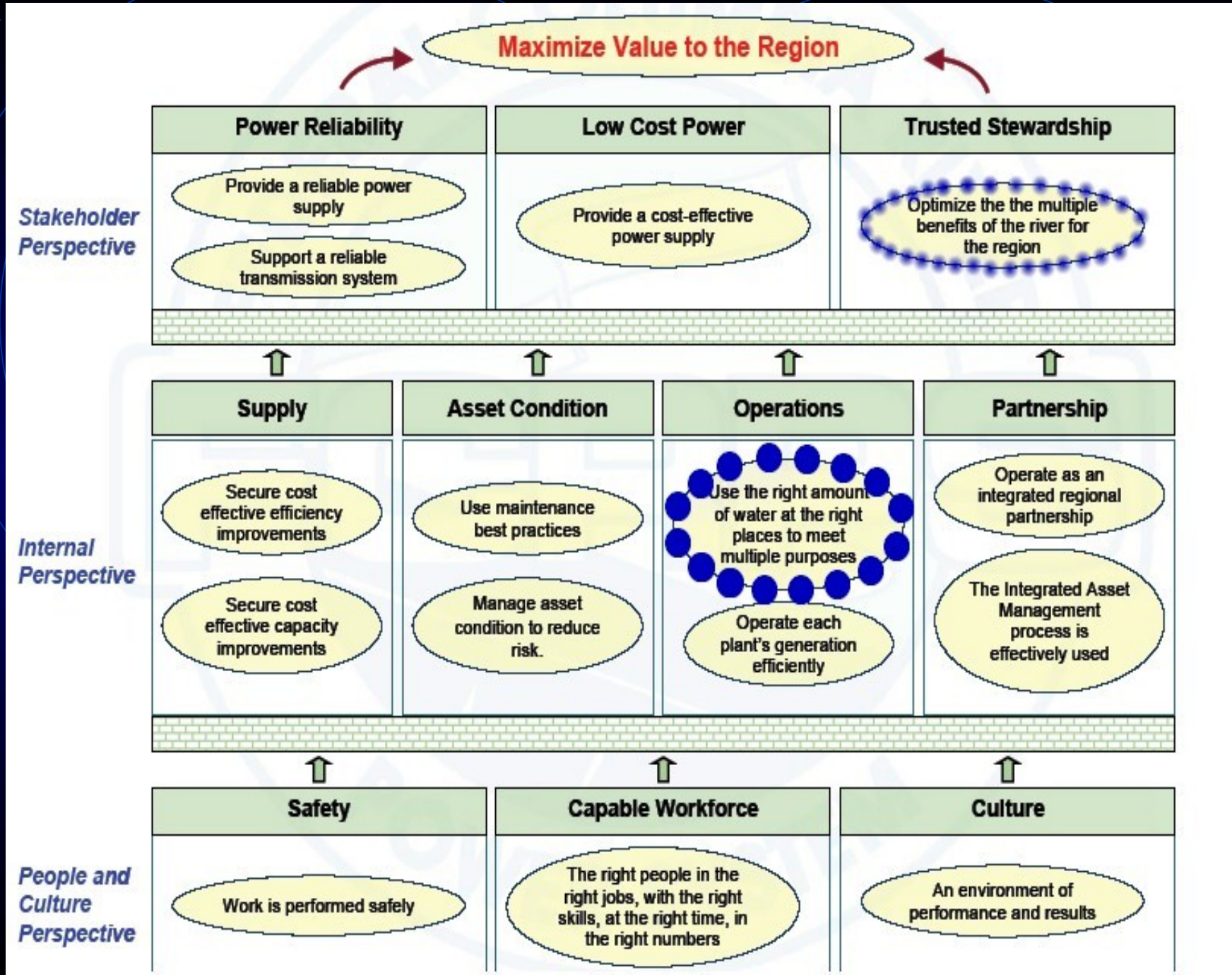
Maximize value of the river for the region

Premise

Potential for increasing value, if we operate with common objectives, strategies and greater trust/collaboration

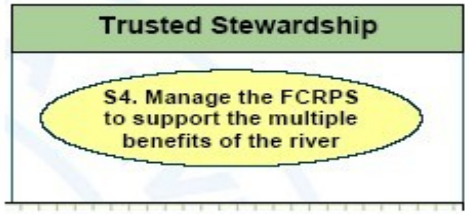
Agreed Upon Method

- Collaborate in decisions & plans to achieve the objectives
- Take appropriate collective advantage of NW resources
- Develop joint strategic long-term objectives, measures & targets

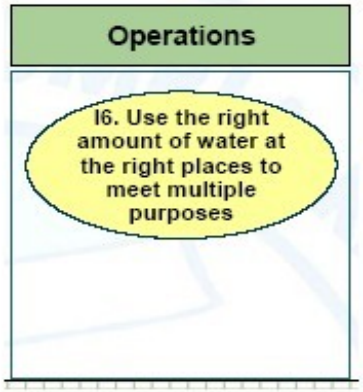

Maximize Value to the Region
Power Reliability
Low Cost Power
Trusted Stewardship
Provide a reliable power supply
Support a reliable transmission system
Provide a cost-effective power supply
Optimize the the multiple benefits of the river for the region
Stakeholder Perspective
Supply
Asset Condition
Operations
Partnership
Secure cost effective efficiency improvements
Secure cost effective capacity improvements
Use maintenance best practices
Manage asset condition to reduce risk.
Use the right amount of water at the right places to meet multiple purposes
Operate each plant's generation efficiently
Operate as an integrated regional partnership
The Integrated Asset Management process is effectively used
Internal Perspective
Safety
Capable Workforce
Culture
Work is performed safely
The right people in the right jobs, with the right skills, at the right time, in the right numbers
An environment of performance and results
People and Culture Perspective

Outcome Statements for Each River Use

- Navigation: River traffic passage is successful between the mouth of the Columbia River and Lewiston, Idaho.
- Flood Control: Local and system-wide flood damage is minimized in the Columbia Basin.
- **Power Generation: Power production is optimized to create maximum net revenues.**
- **Grid Reliability: Generation inputs necessary to maintain the power grid.**
- Irrigation: Water reservoir conditions allow for adequate irrigation withdrawals for the maintenance of agricultural production.
- Municipal and Industrial: Water reservoir conditions allow for adequate municipal and industrial withdrawals.
- Recreation: Recreational use of the river and its reservoirs is optimized.
- Water Quality: State and federal water quality criteria and standards are met.
- Anadromous Fish: Species are protected in a sustainable manner that allows for recovery.
- Resident Fish: Species are protected in a sustainable manner.
- Wildlife: Wildlife in the Columbia Basin are protected and preserved.
- Cultural Resources: Cultural sites are protected and preserved per our trust and treaty

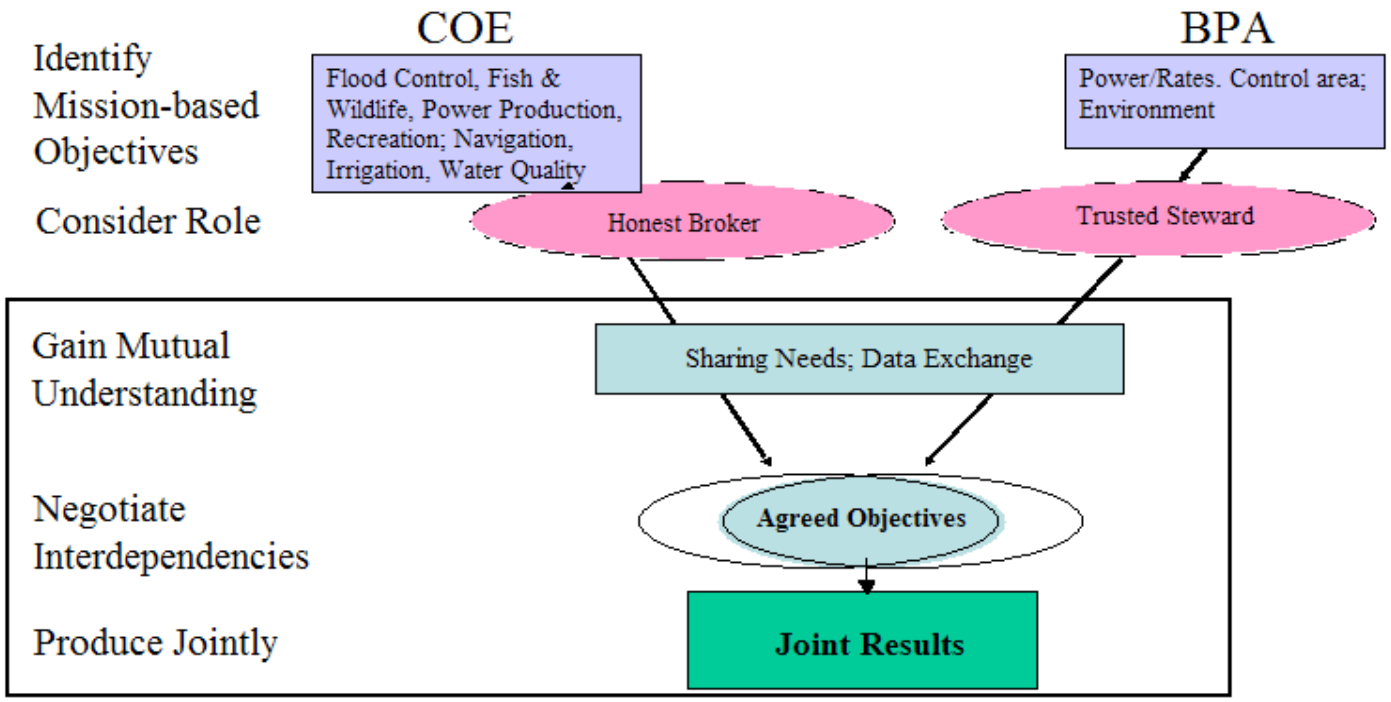


Outcome	Measure	Long-term Target	Short-term Target	Initiative
S4. Manage the to support the multiple benefits of the river	Consensus of the _____ that we are highly effective at meeting the multiple purposes	TBD: Evaluation instrument of outcomes that benefit the region	TBD	Water management strategic planning



Outcome	Measure	Long-term Target	Short-term Target	Initiative
I6. Use the right amount of water at the right places to meet multiple purposes	Consensus of the Federal-family functional managers that we are highly effective at meeting the multiple purposes (multiple benefits)	The trend of power opportunities gained, while still meeting non-power requirements within acceptable risk	Participate in 95 percent of Thursday operations calls	Water management strategic planning

Joint Water Management Partnership Model



NWD-BPA ILLUSTRATIVE EXAMPLES

•Saving $ to BPA, biggest recreation of the year despite 4-5’ raise. BPA will give $ to keep **GCL flat over** 4th of July weekend. USBR distribute units

•- **Qmin out of Palissades** during winter. Fish wants more from Yellowstone for Cutthroat. Irrigators want less because of power bills. This year, experienced with artificial freshet to ramp up the Q to maintain channel for fish.

•- **Operation of DWR** for Fish VECC during Jan-Mar, rather than being on QMIN all the time, look at ways to increase outflow based on closer look at forecast

•- **GCL flood control for end-of-April**. Why use 4/15 target date all the time, which force GCL to drop like a rock. If you have good weather all along, why couldn’t we lower FC. Current procedure is based on 1948 floods, but now we have different ops. There are exceptions to the rule. Let’s find something beneficial to fish and power.

•- **Drawdawn of LIB and HGH**. 20’ out of GCL per BiOp in September. This is revenue neutral for power, but better for recreation in MTN, and fish

•- VARQ release from HGH; limit power peaking. Last 2 years, weekly shaping was possible during April-July w/in the BiOp –down on weekend, up on weekdays.

•- **DWR: 5/16 to 6/16 2004**. Because of 30% snow cover, new FCE lower, hence more Q out. If we had reassessed the situation and stopped spill for a few days, we would have saved 30 ksfd of spill, which is worth $1.65 M

•- **ARROW.** June ops: retain as much water as possible under Nonpower Use Agreement (for later Q augm. for fish). Q augm. in summer is limited by FC at Arrow. Late May, FCE was 1442.5’. On 6/8, FCE was reduced to 1441.0 for system FC. This force Qout by 4 kcfs. But then the following week the FCE was raised to 1442.5, and allow Qout to be reduced. This flow change costs $517,000

Bottom Line

- Water Management is in the Hydro COP
- Need to Coordinate/Share Information
- Realign Early to Face New Challenges
- Recognize Joint Roles & Responsibilities for

Success & Failure

WE ARE IN IT TOGETHER